



**ENGINEERING OPERATIONS COMMITTEE  
MEETING MINUTES  
FEBRUARY 19, 1997, 9:30 A.M.  
EXECUTIVE CONFERENCE ROOM**

Present:	T. A. Coleman	C. Roberts	Pat Schafer (S. E. Hohl)
	J. D. Culp	E. Savas	C. J. Arnold
	T. Fort	E. D. Winkler	W. C. Turner
	P. F. Miller		
Guest:	I. B. Patel	D. L. Smiley	J. R. Kalmbach
	R. Johnson	R. W. Ostrowski	R. Safford
	L. P. Burrill	B. R. Lower	

**OLD BUSINESS**

**1. Approval of the Minutes of the January 8, 1997, Meeting -T. A. Coleman**

Minutes of the January 8, 1997, meeting were approved as presented.

**2. Implementation Plan for Mechanistic Design Update (See Minutes of September 5, 1996, Old Business, Item 2) - D. L. Smiley**

A progress report was presented and a schedule of critical dates requiring action of the EOC are outlined as follows:

- The researchers study will be completed by August 1997.
- The implementation plan and schedule for implementing the study will be presented for consideration by the EOC at the April 1997 meeting.
- Action by the EOC on the proposed plan is requested by June 1997.
- Researchers will incorporate comments and action by EOC as part of the final report.
- The final report of study will be submitted in September 1997.

**ACTION:** The EOC approved the schedule of activities as presented.

**3. Ground-In Rumble Strips Update (See Minutes of January 8, 1997, Old Business, Item 4) - W. C. Turner/J. Kalmbach**

The Design Recommendation Committee (DRC) has completed its recommendation concerning the use of ground-in rumble strips in freeway shoulders. The DRC addressed the problem: "Should we change from rolled-in and formed-in rumble strips to ground-in rumble strips?" Major issues taken into consideration includes: a) insufficient density in top course of bituminous shoulders where rumble strip is rolled in; and b) traffic noise generated

when using concrete shoulders for maintaining traffic. As part of their investigations, the DRC reviewed a study done in Florida, looked at what several other states were using, and invited Douglas Johnson from Surface Preparation Technologies, Inc., to their meeting to discuss the process of ground-in rumble strips. An assessment of available information lead the committee to the following conclusions: Ground-in rumble strips perform better than the rolled-in strips in bituminous shoulders at a small additional cost. They provide more safety and allow for proper bituminous density in the top course. The ground-in strip would also work better in concrete shoulders when traffic is to be maintained on the shoulder.

The DRC recommends the ground-in rumble strip be adopted as MDOT's standard when placing a rumble strip in bituminous shoulders. It also recommends the ground-in rumble strip be used in concrete shoulders when the shoulder will be used for maintaining traffic during construction. The DRC requests approval of the recommendations and request the Quality Assurance Unit to change the standard plan and update the Road Design Manual.

**ACTION:** The EOC approved the DRC recommendations as presented.

4. **Corridor Basis Construction (See Minutes of January 8, 1997, Old Business, Item 5) - C. J. Arnold/W. C. Turner**

There is nothing to report at this time.

**ACTION:** C. J. Arnold will report on the progress at the March meeting.

5. **Hot In-Place Recycle Asphalt - E. D. Winkler/L. R. Brown**

Hot in-place recycle asphalt is being evaluated as a new technology that has beneficial application as part of our preventative maintenance program. Trial projects have been identified as potential candidates for lettering during the 1997 construction season. However, it is unclear as to the department's current position/status regarding hot in-place recycle asphalt projects, as part of our preventative maintenance program. A clarification on this issue was requested.

Before approving this method beyond the experimental status, consistency of techniques and product performance must be addressed.

**ACTION:** The EOC acknowledged that we are still learning this new technology and as such, our efforts will continue on an experimental basis. The EOC approved one project for the 1997 construction program, in the Grand Rapids District.

NEW BUSINESS

1. **Pavement Type Selection, Experimental Project (C.S. 63082, J. N. 35773; Northwestern Highway, 12 Mile to 14 Mile, Metro District) - R. W. Ostrowski/I. B. Patel**

Two construction alternatives were presented, one concrete and one bituminous.

*Decision* - Approve bituminous alternate 1, as follows:

40 mm (1-½ in.)	.....	Bituminous Mix 4C-Modified Top Course
50 mm (2 in.)	.....	Bituminous Mix 3C-Modified Leveling Course
80 mm (3 in.)	.....	Bituminous Crack Relief Layer

**ACTION:** Design will proceed, as stipulated, to meet a February 1998 completion date.

2. **Speed Limits in Work Zones - J. D. Culp**

The department has adopted a new policy that requires reducing work zone speed in 10 mph increments to the final posted reduction. The majority of new contracts and 1996 carry over projects are not set up with this requirement. This will result in a confusing mix of speed reductions in work zones during the 1997 construction season. This will be especially confusing due to the recent increase in the freeway speed limit to 70 mph (i.e. existing projects will reduce speeds from 70 mph to 45 or 55 mph in one step).

The Maintenance Division expressed their concerns regarding the proposal under consideration, which results in work zone speeds of 50 mph (compared to 45 mph current) and the sequence of signs for speed step-down by 10 mph increments. After a lengthy discussion by committee members, the noted divisions were requested to present proposals, as outlined below:

- A. Traffic and Safety Division: 1.) Coordinate with the Work Zone Committee in an effort to develop a system that minimizes the number of signs. 2.) Implement a field study in 1997 to evaluate the effectiveness of reducing posted speed limits in freeway work zones.
- B. Maintenance Division: Develop a proposal that addresses work zone activities requiring short-term and limit duration systems.
- C. Construction Division: Investigate and explore opportunities that will facilitate retrofitting contracts in the works and ways to address new contracts that will be awarded.

**ACTION:** Proposals will be presented for consideration at the March meeting.

3. **Congestion Analysis of Southfield Freeway - J. D. Culp**

An overview of the research report was presented and request for approval for acceptance of the report. Contractual cost for their research effort is \$24,976.00.

**ACTION:** The EOC accepts the report as final submittal for documentation and information. This acceptance shall not be misconstrued as agreement and support of conclusions/recommendations contained within.

4. **Notification the Report *An Evaluation of the Michigan 70 mph Speed Limit* has Been Distributed to the Michigan Senators and Representatives - J. D. Culp**

Notification that the report *An Evaluation of the Michigan 70 mph Speed Limit* has been distributed to the Michigan Senators and Representatives, as required by legislation.

It is recommended and approval is requested to contract with MSU Research Center of Excellence to continue this evaluation in order to provide a minimum of one year experience.

**ACTION:** The EOC approved the one year extension of the study of the effects of the 70 mph speed limit increase on freeways by MSU, as proposed.

5. **Bituminous Advisory Committee (BAC) Future - E. D. Winkler**

Several members (four) of the BAC have expressed their plans to retire in conjunction with the early retirement program. In light of the large number of retirees and the feeling that the department has established a strong partnership with the construction industry (through the Bituminous Guidance Committee) in recent years, members raised the question as to the need for and the viability of maintaining the committee. A general discussion pursued in an effort to get the EOC's perspective in view of the BAC questions.

**ACTION:** The BAC was requested to perform an assessment of committee activities and submit a proposal for consideration at the March meeting.

6. **Deterioration of Concrete Bridge Railing - T. A. Coleman**

This item was presented as information, and the Maintenance Division will follow-up.

**7. Value Engineering - P. F. Miller**

Presented for committee consideration is a Value Engineering Change Proposal (VECP) process. The VECP will allow the department to split project cost savings with a contractor who proposes an acceptable Value Engineering change in a contract during. Major concern regarding the proposed process is our ability to efficiently and effectively respond to proposals if there were large numbers of them.

During the 1996 construction season, contracts were let with the Special Provision for Value Engineering Change Proposals (attached) for five High Impact projects. On these five projects, we received only one VECP, which will result in a total savings of \$186,000 on the project. The approval is still in process, but is being easily handled. Data from other states have also showed they do not receive a large number of VECPs per year, but the savings received has supported continuing the program.

The following is recommended:

- A. The special provision for VECP be placed in all projects estimated to cost over \$5,000,000. The projects should also have a variety of work to allow maximum opportunity for the contractor to formulate proposals.
- B. Processing approvals shall be in accordance with the attached guidelines.
- C. An annual review shall be conducted and a report prepared summarizing the savings created by the program.

**ACTION:** The EOC approved the proposal, with the stipulation that the VECP be placed in all projects estimated to cost over \$2,000,000.

CR:kat

Attachment

cc: EOC Members

District Engineers

R. A. Welke

D. L. Coleman

D. L. Smiley

L. E. DeFrain

I. B. Patel

S. Bower

B. Richter

R. J. Risser, Jr. (MCPA)

A. C. Milo (MRBA)

J. Becsey (MAPA)

G. L. Mitchell

M. Newman (MAA)

M. Frierson

(Signed Copy on File at M&T)

Calvin Roberts, Secretary

Engineering Operations Committee

L. K. Heinig

G. H. Grove

R. W. Muller

G. J. Bukoski

J. Steele (FHWA)

R. J. Lippert, Jr.

T. Adams (MCA)

R. D. Till

R. E. Nordlund

C. W. Whiteside

K. Rothwell

C. Libiran

February 11, 1997

## **CONSTRUCTION VALUE ENGINEERING CHANGE PROPOSAL (VECP)**

VECP's submitted by the Contractor are the continuation of the Value Engineering concepts, principles and techniques applied at the construction stage of a project. Submittal of VECP's from the Contractor should promote lower costs or provide a better product, improve safety or shorten contract time. This would be done by providing alternate construction methods than those in the contract. The modification proposed should not impair, in any manner, the essential functions or characteristics of the project including, but not limited to, service life, economy of operation, ease of maintenance, desired appearance, impacts on utilities and right of way or the design and safety standards or significantly delay the completion of the project. The following procedures are established to give a quick response to the Contractor while allowing the Department to evaluate the VECP. The Department's administrative cost of evaluating the VECP must be tracked so that all the benefits and costs can be determined.

a. **Special Provision**

The vehicle used to provide and maintain an effective program of VECP's is through Special Provision in the contract. The Special Provision provides the Contractors with monetary incentive to participate in cost saving techniques (see attachment #A). The Department also wants to encourage VECP's where there may be no cost savings but improves the overall design or construction of a project.

b. **VECP Submittal**

Referring to Attachment #A, proceed as follows for evaluation and/or approval of the Contractor's VECP:

1. When the Contractor submits a VECP, it must include all items required by the Special Provision shown in Attachment #A. It should be submitted to the Project Engineer with 5 copies. The 4 extra copies will go to the Field Engineer, the District Engineer, and two copies to the Lansing Construction office (attn. Katharine Hulley). The two Lansing Construction copies will be used by Lansing Construction staff and the Value Engineering Decision Team (VEDT). The VEDT membership will be Division Engineers/Administrators or their representatives. Permission may be granted for the Contractor to present the VECP orally, but all the data needed for evaluation shall be submitted in writing.
2. Projects that are non-exempt and therefore should be coordinated directly with the FHWA. When the VECP is received by the Resident/Project Engineer, they will call the FHWA Field Operations Engineer responsible for that project. Based on the scope and content of the VECP, the FHWA Engineer will determine what approvals the FHWA will need to give. For exempt projects, no approval is needed from the FHWA.

3. The Resident/Project Engineer shall evaluate the VECP. The Project Engineer's recommendation and/or decision must be made based on information and coordination with Design, the Project Development Engineer and/or Project Manager, Traffic and Safety, or the Lansing Construction Office, as appropriate. After the Resident/Project Engineer's documents their review and action, along with supporting information, the VECP will proceed as outline in table A. Each person should then document their decision for the next reviewer.
4. All MDOT personnel shall keep track of the time they spend reviewing the VECP. This information shall be forwarded to and gathered by Lansing Construction. The information will be used to track administrative costs and to improve the VECP process.
5. If VEDT action is required, this will be coordinated through Lansing Construcion.
6. If the VECP is approved, the Project Engineer shall notify the Contractor within the proposed change deadline and should prepare and submit the necessary authorization. NOTE: a contract item, "Value Engineering", has been established so that cost savings can be tracked. This should be used as the final approved cost in the authorization. Do not **just** change the regular contract items or we will loose our ability to do annual reviews. Payment shall be in accordance with the special provision of the contract.
7. If the proposed change is rejected, the Project Engineer shall send written notification to the Contractor and shall include the reasons for the rejection. The notification should also note, as stated in the special provision, that the decision is final and there are no appeals.
8. Acceptable VECP's shall be utilized in the design of future applicable projects and applicable design standards. It should be the responsibility of the VEDT to initiate applicable specifications and design standard changes.

**TABLE A**

TOTAL SAVINGS	PROJECT ENGINEER	FIELD ENGINEER	ENGINEER OF CONST.	VEDT
\$ 100,000 or less*	final approval or rejection (by day14)	copy	copy	copy
\$ 100,001 to \$ 250,000	recommend approval or rejection (by day 11)	final approval or rejection (by day 14)	copy	copy
\$ 250,001 to \$ 1,000,000	recommend approval or rejection (by day 10)	copy (by day 12)	final approval or rejection (By day 14)	copy
\$ 1,000,001 or greater	recommend approval or rejection (by day 9)	copy	copy	final approval or rejection copy (By day 14)

NOTE: per procedures, all groups will have the information from the Constructor to review for the full 14 days prior to making a decision



## ATTACHMENT A

### MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS

#### SPECIAL PROVISION FOR VALUE ENGINEERING CHANGE PROPOSAL (VECP)

CD/KJH

1 of 2

04/24/96

C:APPR:JTL:PAL 04/25/96

**Section 1.** The Contractor is encouraged to submit to the Project Engineer, in writing, Value Engineering Change Proposals (VECPs) for modifying the plans, specifications, or other requirements of this contract for the purpose of reducing construction cost or providing a better product, improving safety or shortening contract time. The modification proposed shall not impair, in any manner, the essential functions or characteristics of the project including, but not limited to, service life, economy of operation, ease of maintenance, desired appearance, impacts on utilities and right of way, or design and safety standards or significantly delay the completion of the project. Except as modified by Section 13, VECPs shall contain the following information:

- a. A description of both the existing contract requirements for performing the work and the proposed changes.
- b. An itemization of the contract requirements that must be changed if the proposal is adopted.
- c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed change. The detailed estimate shall include a list of the contract items of work affected by the proposed changes, including any quantity variation.

**Section 2.** VECPs will be considered only when they will not significantly delay the completion of the project or delete work without a related enhancement to the project. The Department shall not be liable to the Contractor for failure to accept or act upon any VECP nor for any delays to the work attributable to any such proposal.

**Section 3.** The Contractor shall continue to perform the work in accordance with the requirements of the contract until a work order and authorization incorporating the VECP has been approved. If a work order and authorization has not been approved by the specified date in the Contractor's VECP, the VECP shall be deemed rejected unless the decision date has been extended by mutual agreement of both parties.

**Section 4.** The Department shall be the sole judge of the acceptability of a VECP and of the estimated net savings in construction costs from the adoption of all or any part of the VECP. In determining the estimated net savings, the right is reserved to disregard the contract prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of work to be performed or to be deleted. The Department's decision is final and there is no appeal. By submitting the VECP, the Contractor agrees not to hold the Department liable for its decision or for any delays to the work attributable to the VECP.

**Section 5.** The Department reserves the right, if it deems such action appropriate, to require the Contractor to share in the Department's cost of investigating the VECP as a condition for considering such VECP. If this condition is imposed, the Contractor shall indicate acceptance in writing, and the acceptance shall constitute full authority for the Department to deduct amounts payable from any monies due or that may become due to the Contractor under the contract.

**Section 6.** If the Contractor's VECP is accepted in whole or in part, the acceptance will be by a work order and authorization which should specifically state that it is executed pursuant to this special provision. The work order and authorization will incorporate the necessary changes in the plans and specifications and will include any conditions upon which the Department's approval is based, if appropriate. The work order and authorization will include the price for performing those items of work affected by the work order and authorization and the estimated net savings in the cost of performing the work attributable to the VECP. The Contractor will be paid 50 percent of the actual net savings of the construction cost, as detailed in Section 12, at the completion of the work affected by the work order and authorization.

**Section 7.** Acceptance of the VECP shall not extend the time of contract completion unless specifically provided for in the work order and authorization.

**Section 8.** The amount specified in the work order and authorization shall constitute full compensation to the Contractor for the VECP and the performance of that work.

**Section 9.** The Department expressly reserves the right to use all or any part of a VECP for general use on other contracts administered by the Department without obligation or compensation of any kind to the Contractor except as noted in Section 12. If an accepted VECP is adopted for general use, only the Contractor who submitted the first VECP shall be eligible for compensation pursuant to this section. The Contractor will be awarded the compensation only for this contract.

**Section 10.** The Contractor may request the return of information submitted with a VECP if the proposal is rejected. Such request shall be in writing and submitted with the VECP. If the VECP is accepted, this request shall be void and the Department may use or disclose in whole or in part any information necessary to utilize the VECP.

**Section 11.** Prior to approval, the Engineer may modify a VECP, with the concurrence of the Contractor, to enhance it or make it acceptable. If any modification increases or decreases the net savings resulting from the VECP, the Contractor's share shall be determined upon the basis of the modified VECP.

**Section 12.** All VECPs shall be submitted to the Project Engineer with five copies. If so desired, the Contractor may submit a conceptual VECP for approval stating the basic concept and approximate cost savings. Approval or disapproval of conceptual VECPs or final VECPs shall be granted within 14 (fourteen) calendar days of receipt of the VECP. The following computation schedule will apply to acceptable VECPs.

<u>Actual Net</u> <u>Total Savings</u>	<u>MDOT Share</u>	<u>Contractor's Share</u>
Less than \$100,000.00	\$50,000.00	Total Savings minus \$50,000.00
\$100,000.00 or more	50%	50%

**Section 13.** The use of this provision should not restrict the contractor from proposing any improvement even if it does not result in cost savings.